

6. (New) The device of claim 4, wherein at least one of the cytophilic islands is formed of a self-assembled monolayer.
7. (New) The device of claim 4, wherein at least one of the cytophobic regions is formed of a self-assembled monolayer.
8. (New) The device of claim 4, wherein the cytophilic islands are located in a plurality of predetermined positions on the surface.
9. (New) The device of claim 4, wherein the cytophilic islands adhere one cell type but do not substantially adhere a second cell type different from the first cell type.
10. (New) The device of claim 4, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.
11. (New) The device of claim 4, wherein at least one of the cytophilic islands is between 1 and 500 square microns.
12. (New) The device of claim 4, wherein at least one of the cytophilic islands is between 1 and 100 square microns.
13. (New) The device of claim 4, wherein at least one of the cytophilic islands has a lateral dimension of between 0.2 and 10 microns.
14. (New) The device of claim 4, wherein at least one of the cytophilic islands is elongated.
15. (New) The device of claim 4, wherein at least one of the cytophilic islands binds only a selected cell type.

16. (New) A method, comprising:
- providing a plate defining a surface and a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands; and
- binding a plurality of cells to the plurality of cytophilic islands such that the cells are in a single line.
17. (New) The method of claim 16, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
18. (New) The method of claim 16, wherein the binding step comprises contacting a suspension of cells with the surface for a period of time sufficient to allow a cell to bind to one of the plurality of cytophilic islands.
19. (New) The method of claim 16, further comprising detecting the plurality of cells bound to the plurality of cytophilic islands.
20. (New) The device of claim ^{42.}~~16~~, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.
21. (New) The device of claim ^{42.}~~16~~, wherein at least one of the cytophilic islands is between 1 and 500 square microns.
22. (New) The device of claim ^{42.}~~16~~, wherein at least one of the cytophilic islands is between 1 and 100 square microns.
23. (New) The device of claim ^{42.}~~16~~, wherein at least one of the cytophilic islands has a lateral dimension of between 0.2 and 10 microns.
24. (New) The device of claim ^{42.}~~16~~, wherein at least one of the cytophilic islands is elongated.

25. (New) The device of claim 16^{42,}, wherein at least one of the cytophilic islands binds only a selected cell type.
26. (New) A device, comprising:
a plate defining a surface; and
a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands, wherein the cytophilic islands are arranged in a grid on the plate.
27. (New) The device of claim 26, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
28. (New) A method, comprising:
providing a plate defining a surface and a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands, wherein the cytophilic islands are arranged in a grid on the plate; and
binding a plurality of cells to the plurality of cytophilic islands.
29. (New) The device of claim 28, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
30. (New) A method, comprising:
providing a plate defining a surface and a plurality of cytophilic islands to which cells adhere on the surface isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands, wherein at least one cytophilic island has at least one cell bound thereto;
subjecting the at least one cell to a treatment; and
assaying an effect of the treatment on the at least one cell.

31. (New) The method of claim 30, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
32. (New) The method of claim 30, wherein the cytophobic regions are sufficiently wide such that less than 10 percent of cells adhered to said cytophilic islands form bridges across said cytophobic regions and contact each other.
33. (New) The method of claim 30, further comprising culturing the at least one cell on the at least one cytophilic island.
34. (New) The method of claim 30, wherein said cytophobic regions are sufficiently wide to prevent cells adhered to said cytophilic islands from contacting each other except via formation of cellular bridges above and free of adhesive contact with said cytophobic regions.
35. (New) The method of claim 30, wherein each cytophilic island has a single cell bound thereto.
36. (New) The method of claim 30, wherein the treatment comprises exposing the at least one cell to a compound.
37. (New) The method of claim 30, wherein the assaying step comprises determining cell morphology.
38. (New) The method of claim 30, wherein the assaying step comprises exposing the at least one cell to a fluorescent compound, and detecting fluorescence of the at least one cell.
39. (New) The method of claim 30, wherein the assaying step comprises exposing the at least one cell to a dye.

40. (New) The method of claim 39, wherein the dye is sensitive to pH.
41. (New) The method of claim 30, wherein the assaying step comprises detecting the presence of a marker.
42. (New) The method of claim 30, wherein the treatment comprises microinjection.
43. (New) The method of claim 30, wherein the treatment comprises in vitro fertilization.
44. (New) The method of claim 30, wherein the treatment comprises cytometry.
45. (New) The method of claim 30, wherein the plurality of cytophilic islands includes a first cell bound to a first cytophilic island and a second cell bound to a second cytophilic island, wherein the first cell and the second cell are different cell types.
46. (New) The method of claim 30, wherein the cytophilic islands includes a first type of cytophilic island and a second type of cytophilic island different from the first type of cytophilic island.
47. (New) A device, comprising:
 - a plate defining a surface; and
 - a cytophilic region on the surface to which cells adhere and a cytophobic region to which cells do not adhere contiguous with the cytophilic region, the regions arranged in a predetermined pattern simulating a natural tissue architecture.
48. (New) The device of claim 47, wherein at least one of the cytophilic region and cytophobic region is formed of a self-assembled monolayer.
49. (New) The device of claim 47, wherein the plate is a prosthesis.

50. (New) The device of claim 47, wherein the plate is constructed and arranged to bind at least one predetermined cell when implanted in an organism.
51. (New) A method, comprising:
attaching a plurality of cells on a plate defining a surface to produce a predetermined pattern on the surface simulating a natural tissue architecture.
52. (New) The method of claim 51, wherein the plate comprises a self-assembled monolayer.
53. (New) The method of claim 51, wherein the tissue architecture is liver architecture.
54. (New) A device, comprising:
a prosthesis defining a surface and a plurality of cytophilic islands to which cells adhere on the surface isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands.
55. (New) The device of claim 54, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
56. (New) The device of claim 54, wherein the device further comprises at least one cell bound to the plurality of cytophilic islands.
57. (New) The device of claim 54, wherein the device is constructed and arranged to bind at least one predetermined cell when implanted in an organism.
58. (New) A method, comprising:
providing a prosthesis defining a surface and a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands; and
implanting the prosthesis in an organism.

59. (New) The method of claim 58, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
60. (New) The method of claim 58, further comprising the step of allowing at least one predetermined cell to bind to the plurality of cytophilic islands.
61. (New) The method of claim 60, wherein the allowing step occurs before the implanting step.
62. (New) The method of claim 60, wherein the allowing step occurs after the implanting step.
63. (New) The method of claim 60, wherein the cell is a cell from the organism.
64. (New) A device, comprising:
 - a bioerodable plate defining a surface; and
 - a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands.
65. (New) The device of claim 64, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
66. (New) The device of claim 64, wherein the bioerodable plate comprises a polyanhydride.
67. (New) The device of claim 64, wherein the bioerodable plate comprises a polylactic acid.
68. (New) The device of claim 64, wherein the bioerodable plate comprises a polyglycolic acid.

69. (New) The device of claim 64, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.
70. (New) A method, comprising:
 - providing a plate defining a surface and a plurality of cytophilic islands to which cells adhere on the surface isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands;
 - implanting the surface in an organism; and
 - allowing the surface to erode.
71. (New) The method of claim 70, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
72. (New) The method of claim 70, wherein the surface comprises at least one cell bound to a cytophilic island.
73. (New) The method of claim 70, further comprising binding a cell to the surface.
74. (New) The method of claim 73, wherein the cell is a cell from the organism.
75. (New) The method of claim 73, wherein the binding step occurs after the implanting step.
76. (New) A device, comprising:
 - a substantially transparent plate defining a surface; and
 - a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands.
77. (New) The device of claim 76, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.

78. (New) The device of claim 76, wherein the device further comprises at least one cell bound to the plurality of cytophilic islands.
79. (New) The device of claim 76, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.
80. (New) A method, comprising:
 - providing a transparent plate defining a surface and a plurality of cytophilic islands on the surface to which cells adhere isolated by cytophobic regions to which cells do not adhere contiguous with the cytophilic islands; and
 - binding a plurality of cells to the plurality of cytophilic islands.
81. (New) The method of claim 80, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer.
82. (New) The method of claim 80, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.
83. (New) A method, comprising:
 - exposing a suspension containing a first cell type and a second cell type to a surface having a plurality of cytophilic islands to which the first cell type adheres and the second cell type substantially does not adhere, the plurality of cytophilic islands isolated by cytophobic regions to which both cell types do not adhere contiguous with the cytophilic islands; and
 - allowing a cell of the first cell type to adhere to a cytophilic island.
84. (New) The method of claim 83, wherein at least one of the cytophilic islands and cytophobic regions is formed of a self-assembled monolayer
85. (New) The method of claim 83, wherein at least one of the cytophilic islands is between 1 and 2,500 square microns.

86. (New) A method, comprising:

forming a first self-assembled monolayer comprising a first compound on a plate defining a surface;

forming a second self-assembled monolayer comprising a second compound on the surface contiguous with the first self-assembled monolayer, wherein the first self-assembled monolayer forms at least one island on the surface isolated by the second self-assembled monolayer.

87. (New) The method of claim 86, wherein the at least one island is cytophilic.

88. (New) The method of claim 86, wherein the at least one island is between 1 and 2,500 square microns.

89. (New) The device of claim 86, wherein the at least one island is between 1 and 500 square microns.

90. (New) The device of claim 86, wherein the at least one island is between 1 and 100 square microns.

91. (New) The device of claim 86, wherein the at least one island has a lateral dimension of between 0.2 and 10 microns.

92. (New) The device of claim 86, wherein the at least one island is elongated.

93. (New) The device of claim 86, wherein the at least one island binds only a selected cell type.

94. (New) A device, comprising:

a self-assembled monolayer surface constructed and arranged to form at least one microculture.

95. (New) The device of claim 94, wherein the self-assembled monolayer surface comprises at least one cytophilic island.
96. (New) The device of claim 94, wherein the self-assembled monolayer surface comprises a cytophobic region.
97. (New) A method, comprising:
 - providing a self-assembled monolayer surface having at least one microculture formed thereon; and
 - adding fluid to the at least one microculture.
98. (New) The method of claim 97, wherein the fluid is aqueous.
99. (New) The method of claim 97, further comprising adding a cell to the at least one microculture.
100. (New) The method of claim 99, further comprising culturing the cell.
101. (New) The method of claim 99, wherein the cell is a microorganism.
102. (New) The method of claim 94, wherein the cell is a bacterium.
103. (New) The method of claim 99, wherein the cell is a yeast cell.
104. (New) The method of claim 99, wherein the cell is a mammalian cell.
105. (New) The method of claim 99, wherein the cell is a spore.
106. (New) The method of claim 99, further comprising the step of detecting a compound secreted from the cell.

107. (New) The method of claim 97, further comprising the step of determining the volume of the at least one microculture.
108. (New) The method of claim 97, further comprising detecting a compound in the at least one microculture.
-

CONCLUSION

This is a preliminary amendment in which the Applicants have canceled claims 2 and 3 and added claims 4-108. No new matter has been added.

A favorable first office action is respectfully requested.

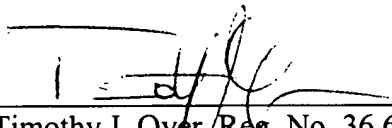
If, for any reason, the examiner is of the opinion that a telephone conversation would expedite prosecution, the examiner is invited to contact the undersigned at (617) 720-3500.

Please charge any fee or any fee deficiency occasioned by this amendment to Deposit Account No. 23/2825.

Respectfully submitted

Ragul Singhvi, et al., Applicants

By:



Timothy J. Oyer, Reg. No. 36,628
WOLF, GREENFIELD & SACKS, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2211
Tel. No.: (617) 720-3500
Attorney for Applicants

Docket No. H00498/70173 TJO
Date: June 19, 2002